PATENT

IN THE SPECIFICATION

Please cancel the partial paragraph beginning at page 18, line 15 and ending at page 18, line 18 as identified below:

~~--Fig. 31 is a cross sectional view that shows an aspect of propagation of ultrasonic waves to an optical fiber in the flat color display according to the ninth embodiment of the invention;~~

A replacement page 18 is attached for the Examiner's convenience.

Please enter the attached page 53, which was mistakenly not submitted at the time of filing the application.

signal line in the flat color display according to the seventh embodiment of the invention;

Fig. 28 is a cross-sectional view of an intersection point of an optical fiber and a control signal line in a flat color display according to the eighth embodiment of the invention;

Fig. 29 is a cross-sectional view that shows an aspect of propagation of ultrasonic waves to an optical fiber in the flat color display according to the eighth embodiment of the invention;

Fig. 30 is a cross-sectional view of an intersection point of an optical fiber and a control signal line in a flat color display according to the ninth embodiment of the invention;

Fig. 31 is a schematic diagram that shows a photon arithmetic device according to the tenth embodiment of the invention; and

Fig. 32 is a schematic diagram that shows a photo operating device according to the eleventh embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Prior to explaining embodiments of the

optical fiber 85 is integrally coupled to the optical fiber 83 at the intersection point therewith. An extension of the optical fiber 85 intersects with an extension of the optical fiber 84, and integrally couples therewith.

In the photon operating device shown here, a laser beam is introduced as signal light from one end of the optical fiber 85. On the other hand, a laser beam is introduced into the optical fiber 81. Once this laser beam (wavelength ω) enters into the optical fiber 82, it is divided into two photons with the wavelength of 2ω due to the nonlinear effect, and they enter into the overlying and underlying optical fibers 83, 84, respectively. The photon having entered into the optical fiber 83 joins with signal light introduced into the optical fiber 85 at the intersection between the optical fiber 83 and the optical fiber 85. Resulting interference light carries information of the signal light. This photon is transmitted through the optical fiber 85, and joins with the other photon having been produced by the nonlinear effect and having entered into the optical fiber 84, at the intersection between the optical fiber 85 and the optical fiber 84. As a result, signal light is reproduced as quantum transportation at the other end of the optical fiber 85.

According to the optical operating device,